Complete Summary

GUIDELINE TITLE

Bronchoscopy assisting—2007 revision & update.

BIBLIOGRAPHIC SOURCE(S)

American Association for Respiratory Care (AARC). Bronchoscopy assisting--2007 revision & update. Respir Care 2007 Jan;52(1):74-80. [51 references]

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: American Association for Respiratory Care (AARC). AARC clinical practice guideline. Fiberoptic bronchoscopy assisting. Respir Care 1993 Dec;38(12):1173-8.

** REGULATORY ALERT **

FDA WARNING/REGULATORY ALERT

Note from the National Guideline Clearinghouse: This guideline references a drug(s) for which important revised regulatory information has been released.

- February 10, 2006, Benzocaine sprays: Public Health Advisory for healthcare professionals and patients about adverse events, including methemoglobinemia, associated with the use of benzocaine sprays used in the mouth and throat.
- July 8, 2005, Duragesic (fentanyl transdermal system): Changes to the BOXED WARNING/WARNINGS, CONTRAINDICATIONS, PRECAUTIONS, and DOSAGE AND ADMINISTRATION sections of the prescribing information to include important safety information.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Inflammatory, infectious, and malignant diseases of the airway and lungs

GUIDELINE CATEGORY

Diagnosis
Evaluation
Management
Treatment

CLINICAL SPECIALTY

Pulmonary Medicine

INTENDED USERS

Respiratory Care Practitioners

GUIDELINE OBJECTIVE(S)

To address the role of the health care professional (HCP) in bronchoscopy assistance (BA)

TARGET POPULATION

Individuals with inflammatory, infectious, and malignant diseases of the airway and lungs

INTERVENTIONS AND PRACTICES CONSIDERED

Bronchoscopy (fiberoptic or rigid) including

- Indications
- Assessment of need
- Assessment of outcome
- Resources (equipment, medications, personnel)
- Patient and technical devices monitoring
- Infection control

MAJOR OUTCOMES CONSIDERED

- Patient outcome as determined by clinical, physiologic, and pathologic assessment

- Procedural outcome as determined by the accomplishment of the procedural goals and by quality assessment indicators
- Hazards and complications

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Not stated

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Not stated

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

External Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

This guideline was approved by the 2006 Clinical Practice Guideline (CPG) Steering Committee

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Indications

Indications include but are not limited to:

- The presence of lesions of unknown etiology on the chest radiograph film or the need to evaluate recurrent pneumonia, persistent atelectasis or pulmonary infiltrates (Bolliger et al., 2002; Ernst, Silvestri, & Johnstone, 2003; Green et al., 1992; Prakash, Offord & Stubbs, 1991; Landa, 1978; Green, 1991; Zawadzka-Glos et al., 2003; Jain et al., 2004)
- The need to assess patency or mechanical properties of the upper airway (Bolliger et al., 2002; Ernst, Silvestri, & Johnstone, 2003; Green et al., 1992; Landa, 1978; Zawadzka-Glos al., 2003)
- The need to investigate hemoptysis, persistent unexplained cough, dyspnea, localized wheeze, or stridor (Bolliger et al., 2002; Ernst, Silvestri, & Johnstone, 2003; Green et al., 1992; Prakash, Offord & Stubbs, 1991; Landa, 1978; Green, 1991; Zawadzka-Glos al., 2003; Selecky, 1978)
- Suspicious or positive sputum cytology results (Bolliger et al., 2002; Ernst, Silvestri, & Johnstone, 2003; Green et al., 1992; Prakash, Offord & Stubbs, 1991; Landa, 1978)
- The need to obtain lower respiratory tract secretions, cell washings, and biopsies for cytologic, histologic, and microbiologic evaluation (Bolliger et al., 2002; Ernst, Silvestri, & Johnstone, 2003; Green et al., 1992; Green, 1991; Jain et al., 2004; Holgate, Wilson & Howarth, 1992; "Summary and recommendations," 1985)
- The need to determine the location and extent of injury from toxic inhalation or aspiration; (Bolliger et al., 2002; Ernst, Silvestri, & Johnstone, 2003; Green et al., 1992; Landa, 1978)
- The need to evaluate problems associated with endotracheal or tracheostomy tubes (tracheal damage, airway obstruction, or tube placement) (Bolliger et al., 2002; Ernst, Silvestri, & Johnstone, 2003; Green et al., 1992; Prakash, Offord & Stubbs, 1991; Landa, 1978; Green, 1991)
- The need for aid in performing difficult intubations or percutaneous tracheostomies (Bolliger et al., 2002; Ernst, Silvestri, & Johnstone, 2003; Green et al., 1992; Landa, 1978; Green, 1991)
- The suspicion that secretions or mucus plugs are responsible for lobar or segmental atelectasis (Bolliger et al., 2002; Ernst, Silvestri, & Johnstone, 2003; Green et al., 1992; Landa, 1978)
- The need to remove abnormal endobronchial tissue or foreign material by forceps, basket, or laser (Bolliger et al., 2002; Ernst, Silvestri, & Johnstone, 2003)

- The need to retrieve a foreign body (although under most circumstances, rigid bronchoscopy is preferred) (Landa, 1978; Green, 1991; Cunanan, 1978)
- Therapeutic management of endobronchial toilet in ventilator associated pneumonia (Bush, 2003)
- Achieving selective intubation of a main stem bronchus (Bush, 2003)
- The need to place and/or assess airway stent function (Bush, 2003)
- The need for airway balloon dilatation in treatment of tracheobronchial stenosis (Hautmann et al., 2001; Mayse et al., 2004)

Contraindications

Flexible bronchoscopy should be performed only when the relative benefits outweigh the risks.

- Absolute contraindications include:
    1. Absence of consent from the patient or his/her representative unless a medical emergency exists and patient is not competent to give permission (Bolliger et al., 2002; Ernst, Silvestri, & Johnstone, 2003)
    2. Absence of an experienced bronchoscopist to perform or closely and directly supervise the procedure (Bolliger et al., 2002; Ernst, Silvestri, & Johnstone, 2003; Green et al., 1992)
    3. Lack of adequate facilities and personnel to care for such emergencies as cardiopulmonary arrest, pneumothorax, or bleeding (Bolliger et al., 2002; Ernst, Silvestri, & Johnstone, 2003; Green et al., 1992)
    4. Inability to adequately oxygenate the patient during the procedure (Bolliger et al., 2002; Ernst, Silvestri, & Johnstone, 2003)
- The danger of a serious complication from bronchoscopy is especially high in patients with the disorders listed, and these conditions are usually considered absolute contraindications unless the risk-benefit assessment warrants the procedure (Bolliger et al., 2002; Ernst, Silvestri, & Johnstone, 2003; Green et al., 1992)

    1. Coagulopathy or bleeding diathesis that cannot be corrected (Bolliger et al., 2002; Ernst, Silvestri, & Johnstone, 2003; Green et al., 1992)
    2. Severe refractory hypoxemia (Bolliger et al., 2002; Ernst, Silvestri, & Johnstone, 2003; Green et al., 1992)
    3. Unstable hemodynamic status including dysrhythmias (Bolliger et al., 2002; Ernst, Silvestri, & Johnstone, 2003; Green et al., 1992)
- Relative contraindications (or conditions involving increased risk), according to the American Thoracic Society Guidelines for Fiberoptic Bronchoscopy in adults (Bolliger et al., 2002; Ernst, Silvestri, & Johnstone, 2003) include:

    1. Lack of patient cooperation
    2. Recent (within 6 weeks) myocardial infarction or unstable angina (British Thoracic Society Bronchoscopy Guidelines Committee, 2001)
    3. Partial tracheal obstruction
    4. Moderate-to-severe hypoxemia or any degree of hypercarbia
    5. Uremia and pulmonary hypertension (possible serious hemorrhage after biopsy)
    6. Lung abscess (danger of flooding the airway with purulent material)
    7. Obstruction of the superior vena cava (possibility of bleeding and laryngeal edema)

8. Debility and malnutrition
9. Disorders requiring laser therapy, biopsy of lesions obstructing large airways, or multiple transbronchial lung biopsies
10. Known or suspected pregnancy (safety concern of possible radiation exposure

- The safety of bronchoscopic procedures in asthmatic patients is a concern, but the presence of asthma does not preclude the use of these procedures (Holgate, Wilson & Howarth, 1992; Smith & Deshazo, 1993)
- Recent head injury patients susceptible to increased intracranial pressures (Kerwin et al., 2000)
- Inability to sedate (including time constraints of oral ingestion of solids or liquids) (British Thoracic Society Bronchoscopy Guidelines Committee, 2001)

Hazards/Complications

Refer to the Potential Harms field for information on hazards and complications of bronchoscopy.

Limitations/Validation of Results

- Bronchoscopy should not be performed in patients who have a contraindication (listed in "Contraindications" section) unless the potential benefit outweighs the risk, as determined by the physician bronchoscopist.
- Poor or inadequate training of the bronchoscopy assistant or bronchoscopist in:
    1. The techniques of premedication for bronchoscopic examination
    2. Function and preparation of bronchoscope and related equipment
    3. Physical and physiologic monitoring during the procedure
    4. Specimen retrieval (biopsies and washings), preparation of specimens, and site documentation
    5. Post-procedure care of the patient

Assessment of Need

Need is determined by bronchoscopist assessment of the patient and treatment plan in addition to the presence of clinical indicators and by the absence of contraindications. (Bolliger et al., 2002; Ernst, Silvestri, & Johnstone, 2003; Green et al., 1992)

Assessment of Outcome

Patient outcome is determined by clinical, physiologic, and pathologic assessment. Procedural outcome is determined by the accomplishment of the procedural goals as indicated in the "Indications" section and by quality assessment indicators listed in the "Monitoring" section.

Resources

- Equipment
    1. Bronchoscopic devices

a. The appropriate bronchoscope size is determined by the bronchoscopist, based on the patient age (Green, 1991); this includes selecting appropriate suction and biopsy valves
b. Bronchoscopic light source, and any related video or photographic equipment, if applicable
c. Cytology brushes, flexible forceps, transbronchial aspiration needles, retrieval baskets (Compatibility of the external diameter of all scope accessories with the internal diameter of the bronchoscope should be verified before the procedure.)
d. Specimen-collection devices, fixatives and as determined by institutional policies
e. Syringes for medication delivery, normal saline lavage, and needle aspiration
f. Bite block
g. Laryngoscope
h. Endotracheal tubes in various sizes
i. Thoracostomy set/tray
j. Venous access equipment (I.V. supplies)
k. Laryngeal mask airway (Yazbeck-Karam, Aouad, & Baraka, 2003)
l. Adaptor with ability to connect mechanical ventilator and bronchoscope simultaneously
m. Sterile gauze for intermittently clearing tip of bronchoscope during procedure
n. Appropriate procedure documentation paperwork, including laboratory requisitions
o. Water-soluble lubricant or lubricating jelly

2. Monitoring devices
    a. Pulse oximeter
    b. Electrocardiographic monitoring equipment
    c. Sphygmomanometer
    d. Whole-body radiation badge for personnel if fluoroscopy is used
    e. Capnograph

3. Procedure room equipment
    a. Oxygen and related delivery equipment
    b. Resuscitation equipment
    c. Medical vacuum systems (wall or portable) and related suction supplies for scope or mouth
    d. Infection control devices (see "Infection Control" section)
    e. Fluoroscopy equipment including personal protection devices if warranted
    f. Laser equipment if applicable
    g. Adequate ventilation and other measures to prevent transmission of tuberculosis (Dooley et al., 1990)

4. Decontamination area equipment
    a. Protease enzymatic agent (e.g., Protozyme) for cleaning and removal of blood and protein before disinfection or sterilization, or other detergent capable of removing these substances (Culver, Gordon, & Mehta, 2003)

b. High-level disinfection or sterilization agent: 2% alkaline glutaraldehyde (e.g., Cidex, Metracide, Sonacide, Glutarex), ethylene oxide, or peracetic acid (Prakash, 1993)
c. Sterile water is preferred, if feasible, for rinsing bronchoscopes. Following this rinsing with isopropyl alcohol (Tablan et al., 2004)

- Medications:

  Institutional policies and personal preferences of the bronchoscopist vary greatly regarding the type and method of premedication for bronchoscopic examination. Administration of these medications by intravenous or intramuscular routes is limited to nurses, physicians, or other trained personnel. (The training and certification of "other personnel" is institution specific, should be consistent with institutional policies, and may include the respiratory therapist.) Aerosolized or atomized drugs, or drugs instilled through the bronchoscope, may be delivered by the respiratory therapist or other trained assistants.

  1. Topical anesthetic (lidocaine 1%, 2%, 4%, benzocaine 14%) (Prakash, Offord, & Stubbs, 1991; Green, 1991; Prakash & Stubbs, 1991; Kirkpatrick, 1989)
  2. Anticholinergic agent to reduce secretions and minimize vaso-vagal reflexes (atropine, glycopyrrolate) (Prakash, Offord, & Stubbs, 1991; Prakash & Stubbs, 1991)
  3. Sedative agent 30-45 min prior to the procedure (e.g., codeine, midazolam, morphine, hydroxyzine) (Prakash, Offord, & Stubbs, 1991; Prakash & Stubbs, 1991)
  4. Intravenous sedative immediately prior to and/or during the procedure (midazolam, propofol, diazepam, fentanyl) (Prakash, Offord, & Stubbs, 1991; Landa, 1978; Prakash & Stubbs, 1991; Pickles et al., 2003; Chhajed & Glanville, 2003)
  5. Benzodiazepine antagonist (flumazenil) (Green et al., 1992), narcotic antagonist (Narcan) (Pickles et al., 2003)
  6. Sterile nonbacteriostatic 0.9% NaCl solution for bronchial washings or lavage (Schnapf, 1991)
  7. Vasoconstrictor for bleeding control (dilute epinephrine, usually 1:10,000) (Zavala, 1976; Hanson et al., 1976)
  8. Inhaled beta agonist (albuterol, metaproterenol, levalbuterol) (Kirkpatrick, 1989)
  9. Water-soluble lubricant, or combined lubricant/anesthetic (viscous lidocaine) (Green, 1991; Mehta et al., 1990; Prakash & Stubbs, 1991)
  10. Nasal decongestants (pseudoephedrine) (Ernst, Silvestri, & Johnstone, 2003)
  11. Mucolytics or mucokininetics (10% or 20% acetylcysteine, 7,5% sodium bicarbonate, rhDNAse) (Durwand, Forte, & Shemie, 2000)
  12. Emergency and resuscitation drugs as deemed appropriate by institutional policies

- Personnel:

The precise role of the bronchoscopy assistant varies among institutions (Green, et al., 1992; Prakash, Offord, & Stubbs, 1991; Green, 1991; American Academy of Pediatrics [AAP], 1992); however, the prime responsibilities include preparation and monitoring of the patient, assisting with the procedure, handling specimens, post-procedure care of the patient, maintenance of the bronchoscopy equipment, and recordkeeping.

1. Bronchoscopy assisting should occur only under the direction of a physician who has been trained in bronchoscopy according to the Guidelines endorsed by the American Thoracic Society (Bolliger et al., 2002; Ernst, Silvestri, & Johnstone, 2003; Green et al., 1992)
2. Bronchoscopy assisting should be limited to personnel who possess the skills necessary to determine adverse reactions and to undertake the appropriate remedial action.
3. The bronchoscopy assistant must be trained in the setup, handling, cleaning, and care of bronchoscopy equipment and related supplies; specimen retrieval and preparation for commonly ordered laboratory studies on bronchoscopy specimens; biopsy labeling; delivery of aerosolized drugs; and mechanical ventilation. The assistant must also be trained in monitoring and evaluating the patient's clinical condition as reflected by pulse oximetry, capnography, electrocardiogram, and stability of or changes in mechanical ventilation parameters, and be capable of relating changes in clinical condition to disease state, procedure, or drugs administered for the procedure. Assistants should be versed in the Centers for Disease Control and Prevention (CDC) ventilation requirements for control of tuberculosis transmission. Bronchoscopy assistants should hold one of the following credentials: Certified Respiratory Therapist (CRT), Registered Respiratory Therapist (RRT), Certified Pulmonary Function Technologist (CPFT), Registered Pulmonary Function Technologist (RPFT), Registered Nurse (RN), Licensed Practical Nurse (LPN), physician (MD or DO), or Certified Surgical Technologist (CST).

Monitoring

Patient monitoring should be done before, at regular intervals during, and after bronchoscopy until the patient meets appropriate discharge criteria. For no or minimal sedation, less monitoring is necessary. For moderate and deep sedation, more monitoring should be done (American Society of Anesthesiologists, 2002). The following should be monitored before, during, and/or after bronchoscopy, continuously, until the patient returns to his pre-sedation level of consciousness.

- Patient
    1. Level of consciousness (AAP, 1992)
    2. Medications administered, dosage, route, and time of delivery (AAP, 1992)
    3. Subjective response to procedure (e.g., pain, discomfort, dyspnea) (AAP, 1992)
    4. Blood pressure, breath sounds, heart rate, rhythm, and changes in cardiac status
    5. Pulse oximetry (SpO_2, fraction of inspired oxygen (FI_{O2}), and end tidal carbon dioxide ($ETCO_2$) (British Thoracic Society Bronchoscopy

Guidelines Committee, 2001; AAP, 1992; American Association for Respiratory Care [AARC], 1991)
6. Tidal volume, peak inspiratory pressure, adequacy of inspiratory flow, and other ventilation parameters if subject is being mechanically ventilated
7. Lavage volumes (delivered and retrieved)
8. Monitor and document site of biopsies and washings. Record which lab tests were requested on each sample
9. Periodic post-procedure follow-up monitoring of patient condition is advisable for 24-48 hours for inpatients. Outpatients should be instructed to contact the bronchoscopist regarding fever, chest pain or discomfort, dyspnea, wheezing, hemoptysis, or any new findings presenting after the procedure has been completed. Oral instructions should be reinforced by written instructions that include names and phone numbers of persons to be contacted in emergency.
10. Chest radiograph one hour after transbronchial biopsy to exclude pneumothorax (Zavala, 1976)

- Technical Devices
    1. Bronchoscope integrity (fiberoptic or channel damage, passage of leak test) (Mehta et al., 1990)
    2. Strict adherence to the manufacturer's and institutional recommended procedures for cleaning, disinfection, and sterilization of the devices, and the integrity of disinfection or sterilization packaging (Culver, Gordon, & Mehta, 2003; Mehta et al., 1990)
    3. Smooth, unhampered operation of biopsy devices (forceps, needles, brushes)

- Record keeping
    1. Quality assessment indicators as determined appropriate by the institution's quality assessment committee
    2. Documentation of monitors indicated in "Patient" and "Technical Devices" sections
    3. Identification of bronchoscope used for each patient
    4. Annual assessment of the institutional or departmental bronchoscopy procedure, including an evaluation of quality assurance issues
        - Adequacy of bronchoscopic specimens (size or volume for accurate analysis, sample integrity)
        - Review of infection control procedures and compliance with the current guidelines for semicritical patient-care objects (Dooley et al., 1990; Culver, Gordon, & Mehta, 2003)
        - Synopsis of complications
        - Control washings to assure that infection control and disinfection/sterilization procedures are adequate, and that cross-contamination of specimens does not occur
        - Annual review of the bronchoscopy service and all of the above listed records with the physician bronchoscopists

Frequency

The frequency with which bronchoscopy is repeated on a given patient should be determined by the physician bronchoscopist based on indications.

Infection Control

- Standard Precautions (Bolyard et al., 1998)
- CDC Guideline for Handwashing and Hospital Environmental Control-Section 2: Cleaning, disinfecting, and sterilizing patient care equipment (Tablan et al., 2004; Boyce & Pittet, 2002; Sehulster & Chinn, 2003)
- CDC Guideline for preventing tuberculosis transmission (Dooley et al., 1990)
- Hepatitis B vaccination for personnel
- Establishment of and conformance to written protocol for infection control

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

REFERENCES SUPPORTING THE RECOMMENDATIONS

References open in a new window

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is not specifically stated for each recommendation.

The guideline is developed from a thorough review of the literature, surveys of current practice, and the expertise of the members of the Working Group.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate bronchoscopy assistance by health care professionals

POTENTIAL HARMS

- Adverse effects of medication used before and during the bronchoscopic procedure
- Hypoxemia
- Hypercarbia
- Bronchospasm
- Hypotension
- Laryngospasm, bradycardia, or other vagally mediated phenomena
- Mechanical complications such as epistaxis, pneumothorax, and hemoptysis
- Increased airway resistance
- Death
- Infection hazard for health-care workers or other patients
- Cross-contamination of specimens or bronchoscopes
- Nausea, vomiting
- Fever and chills

- Cardiac dysrhythmias

CONTRAINDICATIONS

CONTRAINDICATIONS

- Absolute contraindications to bronchoscopy include:
    1. Absence of consent from the patient or his/her representative unless a medical emergency exists and patient is not competent to give permission
    2. Absence of an experienced bronchoscopist to perform or closely and directly supervise the procedure
    3. Lack of adequate facilities and personnel to care for such emergencies as cardiopulmonary arrest, pneumothorax, or bleeding
    4. Inability to adequately oxygenate the patient during the procedure
    5. Coagulopathy or bleeding diathesis that cannot be corrected
    6. Severe refractory hypoxemia
    7. Unstable hemodynamic status including dysrhythmias

- Relative contraindications include
    1. Lack of patient cooperation
    2. Recent (within 6 weeks) myocardial infarction or unstable angina
    3. Partial tracheal obstruction
    4. Moderate-to-severe hypoxemia or any degree of hypercarbia
    5. Uremia and pulmonary hypertension (possible serious hemorrhage after biopsy)
    6. Lung abscess (danger of flooding the airway with purulent material)
    7. Obstruction of the superior vena cava (possibility of bleeding and laryngeal edema)
    8. Debility and malnutrition
    9. Disorders requiring laser therapy, biopsy of lesions obstructing large airways, or multiple transbronchial lung biopsies
    10. Known or suspected pregnancy (safety concern of possible radiation exposure)
    11. Recent head injury
    12. Inability to sedate

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Living with Illness

IOM DOMAIN

Effectiveness
Safety

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

American Association for Respiratory Care (AARC). Bronchoscopy assisting--2007 revision & update. Respir Care 2007 Jan;52(1):74-80. [51 references]

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

1993 Dec (revised 2007 Jan)

GUIDELINE DEVELOPER(S)

American Association for Respiratory Care - Professional Association

SOURCE(S) OF FUNDING

American Association for Respiratory Care (AARC)

GUIDELINE COMMITTEE

Not stated

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Revised by Shelly Clifton RRT CPFT, University of Michigan Hospitals, Ann Arbor, Michigan

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: American Association for Respiratory Care (AARC). AARC clinical practice guideline. Fiberoptic bronchoscopy assisting. Respir Care 1993 Dec;38(12):1173-8.

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the American Association for Respiratory Care (AARC) Web site.

Print copies: Available from the American Association for Respiratory Care (AARC), CPG Desk, 11030 Ables Ln, Dallas, TX 75229-4593; Web site: www.aarc.org.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI on November 30, 1998. The information was verified by the guideline developer on December 15, 1998. This NGC summary was updated by ECRI Institute on June 11, 2007.

COPYRIGHT STATEMENT

DISCLAIMER

NGC DISCLAIMER

The National Guideline Clearinghouse™ (NGC) does not develop, produce, approve, or endorse the guidelines represented on this site.

All guidelines summarized by NGC and hosted on our site are produced under the auspices of medical specialty societies, relevant professional associations, public or private organizations, other government agencies, health care organizations or plans, and similar entities.

Guidelines represented on the NGC Web site are submitted by guideline developers, and are screened solely to determine that they meet the NGC Inclusion Criteria which may be found at http://www.guideline.gov/about/inclusion.aspx .

NGC, AHRQ, and its contractor ECRI Institute make no warranties concerning the content or clinical efficacy or effectiveness of the clinical practice guidelines and related materials represented on this site. Moreover, the views and opinions of developers or authors of guidelines represented on this site do not necessarily state or reflect those of NGC, AHRQ, or its contractor ECRI Institute, and inclusion

or hosting of guidelines in NGC may not be used for advertising or commercial endorsement purposes.

Readers with questions regarding guideline content are directed to contact the guideline developer.

Date Modified: 10/20/2008